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L7: Entry 1 of 9

File: USPT

Oct 15, 1996

DOCUMENT-IDENTIFIER: US 5565411 A

TITLE: (2-imidazolin-2-yl) fused heteropyridine compounds, intermediates for the preparation of and use of said compounds as herbicidal agents

Brief Summary Paragraph Right (58):

A typical emulsifiable concentrate can be prepared by dissolving about 5% to 25% by weight of the active ingredient in about 65% to 90% by weight of N-methyl-pyrrolidone, isophorone, butyl cellosolve, methylacetate or the like and dispersing therein about 5% to 10% by weight of a nonionic surfactant such as an alkylphenoxy polyethoxy alcohol. This concentrate is dispersed in water for application as a liquid spray.

WEST**End of Result Set**

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L7: Entry 9 of 9

File: USPT

Oct 2, 1984

DOCUMENT-IDENTIFIER: US 4474962 A

TITLE: Process for the preparation of pyridyl and quinolyl imidazolinones

Brief Summary Paragraph Right (13):

A typical emulsifiable concentrate can be prepared by dissolving about 5% to 25% by weight of the active ingredient in about 65% to 90% by weight of N-methyl-pyrrolidone, isophorone, butyl cellosolve, methylacetate or the like and dispersing therein about 5% to 10% by weight of a nonionic surfactant such as an alkylphenoxy polyethoxyalcohol. This concentrate is dispersed in water for application as a liquid spray.

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L8: Entry 1 of 21

File: USPT

Apr 3, 2001

DOCUMENT-IDENTIFIER: US 6209453 B1

TITLE: Method for perforating heat-sensitive stencil sheet and stencil sheet and composition therefor

Brief Summary Paragraph Right (26):

The hydrophilic solvent includes alcoholic solvents such as methyl alcohol, ethyl alcohol, isopropyl alcohol and butyl alcohol, glycol solvents such as ethylene glycol, diethylene glycol, triethylene glycol, propylene glycol, ethylene glycol dibutyl ether, diethylene glycol dibutyl ether, thioglycol, thiodiglycol and glycerin as well as ketone, amine and ether solvents. Such ketone, amine and ether hydrophilic solvents include acetone, methyl ethyl ketone, tetrahydrofuran, 1,4-dioxane, 2-pyrrolidone, N-methyl-2-pyrrolidone, formaldehyde, acetaldehyde, methylamine, ethylenediamine, dimethylformamide, dimethyl sulfoxide, pyridine, ethylene oxide and the like. To the liquid, may be added pigments, fillers, binders, hardening agents, preservatives, wetting agents, surfactants, pH-adjusting agents or the like, as required.

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L8: Entry 14 of 21

File: USPT

May 12, 1987

DOCUMENT-IDENTIFIER: US 4664721 A

TITLE: Printing screen cleaning and reclaiming compositions

Abstract Paragraph Left (1):

Ink cleaning compositions are disclosed which degrade or solubilize broad classes of printing ink residues on printing screens for quick removal by a pressurized water stream. The compositions are essentially non-aqueous and contain N-methyl-2-pyrrolidone (NMP), an oxygenated solvent, such as butyl cellosolve and cyclohexanone, and a surfactant. Alternatingly, compositions containing NMP and tetrahydrofurfuryl alcohol as the primary components are disclosed. Methods of cleaning and reclaiming printing screens which provide synergistic activities are also disclosed. The compositions meet health and safety standards due to their biodegradability, lack of flammability and high threshold limit values.

Brief Summary Paragraph Right (10):

As delineated above, the essential components of the inventive compositions are N-methyl-2-pyrrolidone (NMP), an oxygenated solvent and a surfactant. Furthermore, tetrahydrofurfuryl alcohol (THFA) may be substituted for an amount of NMP and desired results are still achieved. Propylene or ethylene oxide adducts of THFA may be used instead of THFA. In a preferred composition, the oxygenated solvents are a combination of butyl cellosolve and cyclohexanone. These preferred oxygenated solvents include esters and ethers, and mixed classes thereof. The surfactant is preferable from the group consisting of nonionic or anionic surfactants, or mixtures thereof, and a specific example of nonionic surfactant is octyl phenoxy (polyethoxy) ethanol of Rohm & Haas, sold under the trademark GAFAC RP-710 by General Aniline and Film Corporation. Further examples of oxygenated solvents from the class of glycol ethers which may be used include methyl cellosolve, hexyl cellosolve, cellosolve solvent, methyl carbitol, carbitol solvent, butyl carbitol, hexyl carbitol, and the like. Other examples of ketones included methyl ethyl ketone, methyl isobutyl ketone, methyl isoamyl ketone, ethyl butyl ketone, isobutyl keptyl ketone, isophorone, diacetone alcohol, acetone, 4-methoxy-4-methyl-2-pentanone, and the like. Other examples of ethers include butyrolactone, diethyl carbitol and dibutyl carbitol, and others. Examples of esters include butyl lactate, butyl acetate, butyl carbitol acetate, carbitol acetate, butyl cellosolve acetate, cellosolve acetate, 2-ethyl hexyl acetate, amyl acetate, methyl cellosolve acetate, formates, and others. Examples of alcohols include amyl alcohol, butyl alcohol, furfuryl alcohol, 2-butyne-1,4,diol, tetrahydrofurfuryl alcohol, and others. Therefore, in accordance with the broader principles of this invention, oxygenated solvents from the above mentioned classes are suitable for use, depending upon the required solvating capacities of the oxygenated solvents in order to obtain the most desired biodegradability, least flammability and highest threshold limit values to meet or exceed health and safety standards. In accordance with the preferred principles of this invention, however, as mentioned above, there are specific examples which meet all of these criteria in the most preferred aspects of this invention. In a generic aspect, the oxygenated solvent facilitates the low viscosity solvating character of the NMP and helps disperse it to solubilize or degrade the ink compositions. The NMP is also water active when needed. Thus, the combination of the NMP and the oxygenated solvent provide a coaction between organic co-solvents along with a unique water activity to provide a synergistic action in solvating or degrading ink compositions on screens for removal with water. Yet, it is imperative that the NMP concentrates be essentially non-aqueous during solvation or degradation of ink because any significant water will destroy the effectiveness of NMP in its cleaning power as it is used in this invention. However, the solvated or degraded ink must then be in a state for removal with a low-volume, pressurized stream of water.

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L8: Entry 19 of 21

File: EPAB

Jun 15, 1983

DOCUMENT-IDENTIFIER: EP 81355 A1

TITLE: Method and use of a composition for cleaning and/or reclaiming printing screens.

Abstract (1):

Method of cleaning and reclaiming printing screens which provide synergistic activities are disclosed. Ink cleaning composition are also disclosed which degrade or solubilize broad classes of printing ink residues on printing screens for quick removal by a pressurized water stream. The compositions are essentially non-aqueous and contain N-methyl-2-pyrrolidone, an oxygenated solvent, such as butyl cellosolve and cyclohexanone, and a surfactant. The compositions meet health and safety standards due to their biodegradability, lack of flammability and high threshold limit values.

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L6: Entry 2 of 726

File: USPT

Apr 2, 2002

DOCUMENT-IDENTIFIER: US 6364544 B1

TITLE: Automatic developing apparatus and method of replenishing replenisher for developer for said apparatuses

Brief Summary Paragraph Right (38):

More preferable surfactants are fluorine-containing surfactants which include in their molecular structure a perfluoroalkyl group. Such surfactants include anionic ones such as perfluoroalkylcarboxylic acid salts, perfluoroalkylsulfonic acid salts, perfluoroalkylphosphoric acid esters, etc., amphoteric ones such as perfluoroalkylbetaine, etc., cationic ones such as perfluoroalkyltrimethylammonium salts, etc., nonionic ones such as perfluoroalkylamine oxides, perfluoroalkylethylene oxide adducts, oligomers having perfluoroalkyl groups and hydrophilic groups, oligomers having perfluoroalkyl groups and oleophilic groups, oligomers having perfluoroalkyl groups, hydrophilic and oleophilic groups, urethanes having perfluoroalkyl groups and oleophilic groups, etc.

Brief Summary Paragraph Right (42):

Moreover, alkylene glycol-added organic boron compounds disclosed in JP-A-59-84241, water soluble surfactants comprising polyoxyethylene/polyoxypropylene block type disclosed in JP-A-60-111246, alkylenediamines substituted with polyoxyethylene polyoxypropylene disclosed in JP-A-60-129750, polyethylene glycol having weight-averaged molecular weight of not less than 300 disclosed in JP-A-61-215554, fluorine-containing surfactants having a cationic group disclosed in JP-A-63-175858, the water soluble ethylene oxide-added compounds obtained by adding 4 or more moles of ethylene oxide to acids or alcohols disclosed in JP-A-2-39157, water soluble polyalkylene compounds, etc.

Detailed Description Paragraph Table (19):

diisocyanate, 2,2-bis(hydroxymethyl)propionic acid and 1.0 g tetraethylene glycol with a weight-averaged molecular weight of 100,000 (hereinafter, referred to as "polyurethane resin a1") Copolycondensed diazonium resin comprising 5/5 (in molar 0.3 g ratio) dodecylbenzene sulfonic acid salt of 4-diazo-3-methoxydiphenylamine and phenoxyacetic acid (hereinafter, referred to as "diazo resin b1") Megafac F-176, a fluorine containing surfactant (made by 0.05 g Dai-Nippon Ink & Chemicals Inc.) Methyl ethyl ketone 50 g Methanol 50 g

Detailed Description Paragraph Table (20):

N-[6-(methacryloyloxy)hexyl]-2,3- 5.0 g dimethylmaleimide/methacrylic acid (60/40) copolymer Sensitizer having a chemical structure shown below 0.3 g Copolycondensed diazonium resin comprising 5/5 in molar ratio of dodecylbenzene sulfonic acid salt of 4-diazophenylamine and 0.3 g phenoxyacetic acid (hereinafter, referred to as "diazo resin c1") Hexafluorophosphoric acid salt of 4-diazo-3- 0.2 g methoxydiphenylamine Victoria Pure Blue BOH made by Hodogaya Chemical 0.1 g Industries, Ltd. Megafac F-176, a fluorine containing surfactant (made by 0.1 g Dai-Nippon Ink & Chemical Industries, Ltd Propylene glycol monomethyl ether 50 g Methyl ethyl ketone 50 g Methanol 20 g ##STR16##

Detailed Description Paragraph Table (22):

IR absorber [IR-6] 0.08 g Onium salt [OI-6] 0.30 g Dipentaerithritol hexaacrylate 1.00 g Copolymer of allyl methacrylate and methacrylic acid with 1.00 g 80:20 molar ratio (weight averaged molecular weight: 120,000) Naphthalene sulfonic acid salt of Victoria Pure Blue 0.04 g Megafac F-176, a fluorine containing surfactant (made by Dainippon Ink & Chemicals Inc.) 0.01 g Methyl ethyl ketone 9.0 g Methanol 10.0 g 1-Methoxy-2-propanol 8.0 g [IR-6] ##STR17## ##STR18## [OI-6] ##STR19## ##STR20##

Detailed Description Paragraph Table (24):

Ethylenically unsaturated compound (A) 1.7 parts by weight Organic linear polymer (B) 1.9 parts by weight Sensitizer (C) 0.15 parts by weight Photo initiator (D) 0.30 parts by weight Additive (S) 0.50 parts by weight Fluorine-containing surfactant (Megafac F-177 0.03 parts by weight (made by Dai-Nippon Ink & Chemicals Inc.) Thermal polymerization initiator (DN-nitrosohy- 0.01 parts by weight droxylamine aluminum salt) .epsilon.-type copper phthalocyanine dispersion 0.2 parts by weight Methyl ethyl ketone 30.0 parts by weight Propylene glycol monomethyl ether 30.0 parts by weight

Detailed Description Paragraph Table (25):

Ethylenically unsaturated compound (A1) 1.5 parts by weight Organic linear polymer (B1) 2.0 parts by weight Sensitizer (C1) 0.15 parts by weight Photo initiator (D1) 0.2 parts by weight -type copper phthalocyanine (F1) dispersion 0.02 parts by weight Fluorine-containing surfactant (Megafac F-177 0.03 parts by weight made by Dainippon Ink Chemical Industries, Ltd.) Methyl ethyl ketone 9.0 parts by weight Propylene glycol monomethyl ether acetate 7.5 parts by weight Toluene 11.0 parts by weight A1 ##STR22## B1 ##STR23## ##STR24## ##STR25##

WEST

Generate Collection

Print

L9: Entry 1 of 2

File: USPT

Sep 8, 1998

DOCUMENT-IDENTIFIER: US 5803956 A

TITLE: Surface treating composition for micro processing

Brief Summary Paragraph Right (4):

Hydrofluoric acid is used as a surface treating agent (hereinafter referred to briefly as a "treating solution") in fabricating semiconductor devices. While such treating solutions need to have a high purity and high cleanness in view of the purpose of the treatment, a perfect and comprehensive surface-treating function has further been required of the solution to produce semiconductor devices of higher integration density or complexity and higher performance in high yields.

Brief Summary Paragraph Right (13):

The cleaning step included in semiconductor fabrication processes and executed with use of hydrofluoric acid is very important, and attention has been directed especially to the smoothness of cleaned surfaces as a critical factor in submicron devices.

Brief Summary Paragraph Right (16):

There are a wide variety of surfactants, which are divided generally into hydrocarbon surfactants and fluorine-containing surfactants. Each of these types include cationic, anionic, amphoteric and nonionic surfactants. Although Unexamined Japanese Patent Publication 1989-183824 discloses that any surfactants are useful insofar as they are of the hydrocarbon type, this is not true of the application contemplated by the present invention.

Brief Summary Paragraph Right (19):

Examined Japanese Patent Publication 1992-16011 discloses a method of etching a silicon oxide film formed on the bottom surfaces of micro groove of 1 to 5 μm square with a composition comprising hydrofluoric acid and a nonionic surfactant added thereto. Although polyethylene glycol lauryl ether, polyethylene glycol alkylphenyl ethers and polyethylene glycol fatty acid esters are given in the publication as examples or nonionic surfactants, the sole example of composition mentioned is one comprising, hydrofluoric acid diluted to a ratio of 1:20 and 1 vol. % of polyethylene glycol lauryl ether added thereto. Presently, with advances made in integrated circuits of high complexity, the size of micro groove or line width to be etched are not larger 1 μm . The treating composition of Examined Patent Publication 1992-16011 is not serviceable as such in the current stage of progress in circuits of high complexity, and there is a need to use compositions fulfilling more stringent requirements as to surface tension, contact angle and characteristics to be described herein. Thus, surfactants suited to the fabrication of advanced semiconductor devices of higher integration density or complexity can not be selected from among those which are disclosed in the publication 1992-16011 and which are not suitable for use in etching agents and cleaning agents.

Brief Summary Paragraph Right (22):

To overcome the problems relating to the treating composition, we have conducted careful technical investigations and carried out experiments with meticulous consideration given thereto from the viewpoint of cleaning technology. Surfactants are used for a very wide variety of applications under diversified conditions, and are divided generally into hydrocarbon surfactants and fluorine-containing surfactants. These two types are further divided into cationic, anionic, amphoteric and nonionic types.

Detailed Description Paragraph Right (8):

The hydrocarbon surfactants and fluorine-containing surfactants include a considerably large number of those which give the treating solution a contact angle of up to 50 degree and surface tension of up to 45 dynes/cm when added to the solution. These

surfactants are evaluated as being suitable for the object of the invention if the treating composition still retains these properties after circulating filtration at a concentration of up to 1000 ppm at which no trouble occurs due to excessive use of the surfactant.

Detailed Description Paragraph Right (24):

The first purpose of the present treating composition is to remove a natural oxide film from silicon surfaces. Growth of the natural oxide film occurs not only in the atmosphere but also when silicon wafers are rinsed with ultrapure water or when sulfuric acid-hydrogen peroxide aqueous solution, hydrochloric acid-hydrogen peroxide aqueous solution or ammonia water-hydrogen peroxide aqueous solution is used for cleaning in semiconductor fabrication processes.

Detailed Description Paragraph Right (28):

However, some surfactants cover the silicon oxide film and hamper removal of the oxide film with hydrofluoric acid. Accordingly, even if the silicon substrate is immersed in the treating composition for one minute, it is likely that ultrapure water will not exhibit a contact angle of about 72 degree. The surfactant becomes adsorbed by the surface of the oxide film, not only hampering etching of the oxide film but also forming a hydrophobic surface characteristic of fluorine-containing surfactants, such that ultrapure water exhibits a contact angle of at least 85 degree on the surface. Hydrocarbon surfactants are highly hydrophilic, become adsorbed by the natural oxide film on the wafer surface and permit the oxide film to remain partly unremoved with an HF solution, so that water exhibits a diminished contact angle of about 50 degree on the surface. Water on a natural oxide film grown by the dry method shows a large contact angle (36 degree), so that it is difficult to check whether the oxide film has been removed. For this reason, the film grown by the wet method was used.

WEST**End of Result Set**

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L12: Entry 69 of 69

File: EPAB

Jun 15, 1983

PUB-NO: EP000081355A1

DOCUMENT-IDENTIFIER: EP 81355 A1

TITLE: Method and use of a composition for cleaning and/or reclaiming printing screens.

PUBN-DATE: June 15, 1983

INVENTOR-INFORMATION:

NAME

COUNTRY

CORD, ALBERT B

VALASEK, GARY M

ASSIGNEE-INFORMATION:

NAME

COUNTRY

INTERCONTINENTAL CHEM CORP

US

APPL-NO: EP82306451

APPL-DATE: December 3, 1982

PRIORITY-DATA: US32778281A (December 7, 1981)

US-CL-CURRENT: 510/177

INT-CL (IPC): C09D 9/04

EUR-CL (EPC): C09D009/00; C09D009/04, G03F007/42

ABSTRACT:

Method of cleaning and reclaiming printing screens which provide synergistic activities are disclosed. Ink cleaning composition are also disclosed which degrade or solubilize broad classes of printing ink residues on printing screens for quick removal by a pressurized water stream. The compositions are essentially non-aqueous and contain N-methyl-2-pyrrolidone, an oxygenated solvent, such as butyl cellosolve and cyclohexanone, and a surfactant. The compositions meet health and safety standards due to their biodegradability, lack of flammability and high threshold limit values.

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L12: Entry 66 of 69

File: USPT

Jun 3, 1975

US-PAT-NO: 3887497

DOCUMENT-IDENTIFIER: US 3887497 A

TITLE: Liquid cleansing composition and method of producing

DATE-ISSUED: June 3, 1975

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Ulvild; George B.	Corpus Christi	TX	78407	

APPL-NO: 5/ 341383 [PALM]

DATE FILED: March 15, 1973

INT-CL: [] C11d 3/065, C11d 3/08, C11d 3/10

US-CL-ISSUED: 252/526; 134/2, 134/40, 252/525, 252/527, 252/529, 252/139, 252/143, 252/545, 252/546, 252/548, 252/158, 252/558, 252/559, 252/DIG.14

US-CL-CURRENT: 510/420; 134/2, 134/40, 510/365, 510/432, 510/480

FIELD-OF-SEARCH: 134/40, 252/526, 252/527, 252/529, 252/539, 252/139, 252/143, 252/144, 252/156, 252/545, 252/546, 252/548, 252/158, 252/159, 252/558, 252/559, 252/525, 252/DIG.14

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

Search Selected

Search ALL

	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<input type="checkbox"/>	<u>3538006</u>	November 1970	Benson et al.	252/529 X
<input type="checkbox"/>	<u>3645906</u>	February 1972	Valenta et al.	252/DIG.14
<input type="checkbox"/>	<u>3723330</u>	March 1973	Sheflin	134/40 X
<input type="checkbox"/>	<u>3730904</u>	May 1973	Clementson et al.	134/40 X

ART-UNIT: 223

PRIMARY-EXAMINER: Sebastian; Leland A.

ATTY-AGENT-FIRM: Rice; Stewart N.

ABSTRACT:

A relatively stable, liquid cleansing composition containing (a) an alkylbenzene sulfonic acid detergent surfactant, (b) an alkaline builder or a builder which is a mineral acid or inorganic salt thereof, (c) a normally liquid organic solvent, and (d) water. The molar ratio of builder material to the detergent surfactant is from 0.01:1 to 3:1, the weight ratio of solvent to detergent surfactant is within the range of 1:1 to 5:1 and water may be present in the composition in amounts from about 4 to 80 weight

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L12: Entry 45 of 69

File: USPT

Apr 7, 1992

DOCUMENT-IDENTIFIER: US 5102573 A

TITLE: Detergent composition

Abstract Paragraph Type 1 (1):

a. from about 1 to 40%, preferably 4 to 20%, of a surfactant selected from the group consisting of anionic surfactants, nonionic surfactants and mixtures thereof;

Brief Summary Paragraph Right (3):

Current light duty liquid detergents are dramatically deficient in these areas. The consumer has to soak soiled items for long periods of time in these solutions, and then use harsh cleaning methods (scouring with steel wool or scouring cleanser) to remove the remaining soil.

Brief Summary Paragraph Right (4):

To speed up the process and increase efficacy of cleaning these soils, the consumer will resort to heat, scraping, and harsh chemicals (e.g. caustic oven cleaners).

Brief Summary Paragraph Right (5):

Deficiencies in these cleaning methods include time consumption for soaking and scouring, physical effort required for scouring and scraping, irritation to hands from harsh cleaning chemicals and methods, damage to objects from harsh chemicals and methods, unpleasant fumes and odors, and danger from heated solutions. Though non-caustic cleaners are listed in the literature, none are directed to the cleaning compositions of the present invention.

Brief Summary Paragraph Right (6):

The liquid pre-spotting compositions of the present invention consist of five major components. The first three (the ternary system) include surfactants (nonionic, anionic and their combinations), builder salts, and an amine. The fourth component is water, and the fifth is a solvent system by which the efficacy of the ternary system is enhanced. Such solvent system utilizes specific individual organic solvents or certain binary solvent systems comprising mixtures of at least two organic solvents. These compositions may be formulated as clear, single-phase liquids, sprays, gels, or pastes and dispensed from bottles, pump sprays, aerosol cans, squeeze bottles, or paste dispensers. It has been found that applying the caustic-free compositions of the present invention to soiled surfaces removes the above mentioned soils at ambient temperature in a relatively short period of time (from 10 to 30 minutes) without need for heat, long soaking times, scouring, or harsh chemicals.

Brief Summary Paragraph Type 1 (1):

a. from about 1 to 40%, and preferably 4 to 20%, of a surfactant selected from the group consisting of anionic surfactants, nonionic surfactants and mixtures thereof;

Detailed Description Paragraph Right (1):

The pre-spotting compositions of this invention are essentially comprised of the following components: surfactant, builder, alkanolamine, solvent system, and water. In addition to the above ingredients, the compositions of this invention may contain other substances generally present in detergent compositions. For example, the composition may be thickened if desired by the addition of known viscosity increasing, thixotropic, or viscoelastic agents. Foam stabilizing agents may also be incorporated, and other ingredients which may normally be present include preservatives, humectants, foam boosters, anti-foaming agents, dispersants, pH modifiers, colorants, and perfumes. There may also be present, if desired, imidazole.

Detailed Description Paragraph Right (2):

According to a first embodiment of the invention, the surfactant, which is present in the amount of 1-10% of the composition, is selected from the group consisting of nonionic surfactants, anionic surfactants, and their combinations. Preferably, the surfactant is present in the amount of 1-5%.

Detailed Description Paragraph Right (3):

The nonionic surfactant, preferably, is comprised of one or a mixture of primary alcohol ethoxylates or secondary alcohol ethoxylates or alkyl phenol ethoxylates. The primary alcohol ethoxylates are represented by the general formula:

Detailed Description Paragraph Right (5):

Wherein $x+y$ is from 6 to 15 and the number of ethoxylate groups, n , is from 5 to 12. Commercially available surfactants of this type are sold by Union Carbide Corporation under the tradename Tergitol S series surfactants, with Tergitol 15-S-9 (T 15-S-9) being preferred for use herein.

Detailed Description Paragraph Right (7):

The anionic surfactant is preferably comprised of paraffin sulfonates, sodium alkyl sulfates, and alkyl benzene sulfonates, such as sodium linear tridecyl or dodecyl benzene sulfonate, sodium and/or ammonium alcohol 3-ethoxy sulfate (AEOS), sodium lauroyl, cocoyl or myristoyl sarcosinate or a combination thereof.

Detailed Description Paragraph Right (8):

The surfactant in the ternary system can be anionic, nonionic, or a combination thereof, as shown below:

Detailed Description Paragraph Right (9):

It has been found, however, that cationic surfactants adversely effect the soil removal efficiency of the ternary system, as shown below:

Detailed Description Paragraph Right (24):

The builder salt (i.e. potassium pyrophosphate) and the alkanolamine (i.e. triethanolamine) are dissolved in the softened water with moderate stirring. The surfactant(s) and solvents are then added with slow stirring until dissolved. The pH of the solution is adjusted to 9 with sulfuric acid. Perfume, if used, is added last.

Detailed Description Paragraph Right (27):

Compositions according to this embodiment of the invention comprise surfactant (1-5%), builder (1%), alkanolamine (up to 0.2%), water, and the solvents identified above--either singly or in a combination of two, so long as the total solvent content is between 15-50% of the composition, the pH of which is about 9.

Detailed Description Paragraph Right (29):

The soaking and cleaning procedures are similar to those described above, e.g., glass slides, aluminum coupons and stainless steel planchets were employed as substrates. Three types of soils--Milk-egg, egg, and Crisco shortening--were uniformly applied onto the substrates. The baking conditions for various solids are shown in Table III.

Detailed Description Paragraph Right (36):

B. 3% to 20% solvent, which can be Butyl Cellosolve, Butyl Carbitol, or N-methyl 2-pyrrolidone.

Detailed Description Paragraph Right (39):

E. 3% to 20% of a surfactant, such as sodium linear tridecyl or dodecyl benzene sulfonate, sodium alcohol 3-ethoxy sulfate, sodium lauroyl, cocoyl, or myristoyl sarcosinate, or a combination thereof.

Detailed Description Paragraph Left (1):

wherein R is an alkyl radical having from 9 to 16 carbon atoms and the number of ethoxylate groups, n , is from 5 to 12. Commercially available nonionic surfactants of this type are sold by Shell Chemical Company under the tradename Neodol and by Union Carbide Corporation under the tradename Tergitol.

Detailed Description Paragraph Left (2):

where the number of ethoxylate groups, n , is from 8 to 15, and R is an alkyl radical having 8 or 9 carbon atoms. Commercially available nonionic surfactants of this type are sold by Rohm and Haas Company under the tradenames Triton N and Triton X series.

Detailed Description Paragraph Center (4):

Cleaning TestDetailed Description Paragraph Table (11):

	Composition #1	#2	#3	#4	#5	#6
Sodium Lauroyl	--	--	16.7%	10%	--	16.7%
Sarcosinate Cocoamidopropyl	6%	6%	--	--	--	--
Imidazole	5%	5%	5%	--	5%	5%
Butoxyethanol	--	--	--	4%	4%	4%
1% 1% 1.2% Sodium Pareth-25	--	--	--	--	3%	--
EDTA	--	--	--	--	1%	--
Water (deionized)	74%	74%	67.1%	73%	80%	67.1%
					pH 10	10 10 10 10

CLAIMS:

1. A method for treating hard surfaces soiled with cooked-on, baked-on or dried-on food residues comprising:

applying to such soiled surface a pre-spotting composition which comprises

a. from about 1 to 40% of a surfactant selected from the group consisting of anionic surfactants, nonionic surfactants and mixtures thereof;

b. from about 1 to 10% of a builder selected from the group consisting of polyphosphates, citrates, pyrophosphates, carbonates and mixtures thereof;

c. from about 0.2 to 2% of an amine selected from the group consisting of monoethanolamine, diethanolamine, and triethanolamine and mixtures thereof;

d. water; and

e. from about 3 to 50% of a solvent, which solvent is selected from the groups consisting of:

i) sulfolane, propylene glycol monomethyl ether acetate, dipropylene glycol monomethyl ether acetate, ethylene glycol monoethyl ether acetate, diethylene glycol dimethyl ether, ethylene glycol dimethyl ether, diethylene glycol diethyl ether, and mixtures thereof;

ii) Diethylene glycol monobutyl ether, ethylene glycol monobutyl ether, and N-methyl 2-pyrrolidone and mixtures thereof; and

iii) a mixture of two solvents, the first such solvent comprising 5-17% of an acetate selected from the group consisting of ethyl acetate and n-propyl acetate, and the second such solvent comprising 15-34% of a solvent selected from the group consisting of acetone, N-methyl 2-pyrrolidone and methyl ethyl ketone, wherein the ratio of the first solvent to the second solvent may range from 1:4 to 1:2;

and maintaining said so applied soiled surface at a temperature ranging from room temperature to 45.degree. C. for a period of time ranging from at least about ten to thirty minutes to permit said composition to loosen said residues and then rinsing said surface to remove said loosened residue.

5. The method of claim 1 wherein the anionic surfactant is selected from the group consisting of paraffin sulfonates, sodium alkyl sulfates, alkyl benzene sulfonates, alcohol ethoxy sulfates, sodium lauroyl sarcosinate, sodium cocoyl sarcosinate, sodium myristoyl sarcosinate and combinations thereof.

6. The method of claim 1 wherein the nonionic surfactant is selected from the group consisting of primary alcohol ethoxylates, nonylphenol alcohol ethoxylates, secondary alcohol ethoxylates, alkyl phenol ethoxylates, and mixtures thereof.

17. A method for treating hard surfaces soiled with cooked-on, baked-on or dried-on food residues comprising:

applying to such soiled surface a pre-spotting composition which comprises

a. from about 1 to 10% of a surfactant selected from the group consisting of anionic surfactants, nonionic surfactants and mixtures thereof;

- b. from about 1 to 10% of a builder selected from the group consisting of polyphosphates, citrates, pyrophosphates, carbonates and mixtures thereof;
- c. from about 0.2 to 2% of an amine selected from the group consisting of monoethanolamine, diethanolamine, and triethanolamine and mixtures thereof;
- d. from about 3 to 50% of a solvent, which solvent is selected from the groups consisting of a mixture of two solvents, the first such solvent comprising 5-17% of an acetate selected from the group consisting of ethyl acetate and n-propyl acetate, and the second such solvent comprising 15-34% of a solvent selected from the group consisting of acetone, N-methyl 2-pyrrolidone and methyl ethyl ketone, wherein the ratio of the first solvent to the second solvent may range from 1:4 to 1:3; and
- e. water;

and maintaining said so applied soiled surface at a temperature ranging from room temperature to 45.degree. C. for a period of time ranging from at least about ten to thirty minutes to permit said composition to loosen said residues and then rinsing said surface to remove said loosened residue.

19. A method for treating hard surfaces soiled with coated-on, baked-on or dried-on food residues comprising:

applying to such soiled surface a pre-spotting composition which comprises

- a. from about 1 to 5% of a surfactant selected from the group consisting of anionic surfactants, nonionic surfactants and mixtures thereof;
- b. about 1% of a builder selected from the group consisting of polyphosphates, citrates, pyrophosphates, carbonates and mixtures thereof;
- c. about 0.2% of an amine selected from the group consisting of monoethanolamine, diethanolamine, and triethanolamine and mixtures thereof;
- d. from about 3 to 50% of a solvent, which solvent is selected from the groups consisting of sulfolane, propylene glycol monomethyl ether acetate, dipropylene glycol monomethyl ether acetate, ethylene glycol monoethyl ether acetate, diethylene glycol monoethyl ether acetate, diethylene glycol dimethyl ether, ethylene glycol dimethyl ether, diethylene glycol diethyl ether, and mixtures thereof; and
- e. water;

and maintaining said so applied soiled surface at a temperature ranging from room temperature to 45.degree. C. for a period of time ranging from at least ten to thirty minutes to permit said composition to loosen said residues and then rinsing said surface to remove said loosened residue.

21. A method for treating hard surfaces soiled with coated-on, baked-on or dried-on food residues comprising:

applying to such soiled surface a pre-spotting composition which comprises

- a. from about 3 to 20% of a surfactant selected from the group consisting of anionic surfactants, nonionic surfactants and mixtures thereof;
- b. from about 2 to 7% of a builder selected from the group consisting of polyphosphates, citrates, pyrophosphates, carbonates and mixtures thereof;
- c. from about 0.5 to 2% of an amine selected from the group consisting of monoethanolamine, diethanolamine, and triethanolamine and mixtures thereof;
- d. from about 3 to 20% of a solvent, which solvent is selected from the groups consisting of diethylene glycol monobutyl ether, ethylene glycol monobutyl ether, and N-methyl 2-pyrrolidone and mixtures thereof;
- e. from about 3 to 22% imidazole; and
- f. water;

and maintaining said so applied soiled surface at a temperature ranging from room temperature to 45.degree. C. for a period of time ranging from at least about ten to thirty minutes to permit said composition to loosen said residues and then rinsing said surface to remove said loosened residue.

Chemicals Inspection and Testing Service, Japan: Biodegradation and Bioaccumulation Data of Existing Chemicals

Information about this particular compound

Ligand Chemical Database for Enzyme Reactions

Information about this particular compound

Chemical Online Order

Available Chemicals Exchange

Information about this particular compound

Health

ATSDR Internet HazDat Site Contaminant Query

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NTP Chemical Health and Safety Data

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Berkeley Carcinogenic Potency Database

8(e) TRIAGE Chemical Studies Database

UMCP Partial list of teratogens

Air Pollution Exposure Distributions of Adult Urban Populations in Europe

International Chemical Safety Cards

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Australian Atmospheric Exposure Standards

Information about this particular compound

Australian Hazardous Substances Database

Information about this particular compound

Misc

Protocol Analytical Supplies, Inc. Single-component standards

Physical Properties

Environmental Science Center database with Experimental Log P coefficients etc.

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NIST Chemistry WebBook

Information about this particular compound

ABCR GmbH&Co KG

N-Methyl-2-pyrrolidone

1-Methyl-2-pyrrolidinone, 99+%

Proton NMR Spectral Molecular Formula Index

Information about this particular compound

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[North American Emergency Response Guidebook 1996 \(NAERG96\)](#)

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[Australian Atmospheric Exposure Standards](#)

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MSDS

New Jersey Right to Know Hazardous Substance Fact Sheets

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Pesticides/Herbicides

USEPA / OPP's Chemical Ingredients Database

Information about this particular compound

US EPA Status of Pesticides in Registration (in PDF format)

Physical Properties

Environmental Science Center database with Experimental Log P coefficients etc.

Information about this particular compound

JICST Mass Spectral Database

Information about this particular compound

NIST Chemistry WebBook

Information about this particular compound

ABCR GmbH&Co KG

2-n-Butoxyethanol, 99%

2-Butoxyethanol

Tropospheric Chemistry Modelling

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Proton NMR Spectral Molecular Formula Index

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DuPont TYVEK® Protective Apparel Information Service

Information about this particular compound

Pollution Prevention Progress Measurement Method (3P2M) Hazard Ranking

Galactic Industries Corporation Spectral Database

FTIR SPECTRUM of CELLOSOLVE, BUTYL-,

Genium's Chemical Container Label Database

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NFPA Chemical Hazard Labels

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Spectrum Laboratories, Inc.

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Regulations

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[Texas Clean Air Act](#)

[California EPA List of Lists](#)

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<u>L12</u>	L11 and clean\$	69	<u>L12</u>
<u>L11</u>	pyrrolidone same (ethylene glycol \$butyl ether or butoxy ethanol or butyl cellosolve or butoxyethanol or etkasolve or jeffersol or gafcol) and surfactant	179	<u>L11</u>
<u>L10</u>	pyrrolidone same (ethylene glycol \$butyl ether or butoxy ethanol or butyl cellosolve or butoxyethanol or etkasolve or jeffersol or gafcol) same surfactant	21	<u>L10</u>
<u>L9</u>	5746836.pn.	3	<u>L9</u>
<u>L8</u>	pyrrolidone same (ethylene glycol \$butyl ether or butoxy ethanol or butyl cellosolve or butoxyethanol) same surfactant	21	<u>L8</u>
<u>L7</u>	methyl pyrrolidone same (ethylene glycol \$butyl ether or butoxy ethanol or butyl cellosolve or butoxyethanol) same surfactant	9	<u>L7</u>
<u>L6</u>	methyl pyrrolidone same (ethylene glycol \$butyl ether or butoxy ethanol or butyl cellosolve) same surfactant	9	<u>L6</u>

DB=USPT,PGPB,JPAB,EPAB,DWPI,TDBD; PLUR=YES; OP=ADJ

<u>L5</u>	(clean\$) same methyl pyrrolidone same ethylene glycol \$butyl ether same surfactant	0	<u>L5</u>
<u>L4</u>	(cleaning solution or composition) same methyl pyrrolidone same ethylene glycol \$butyl ether same surfactant	0	<u>L4</u>

DB=USPT; PLUR=YES; OP=ADJ

<u>L3</u>	(coat\$ with polym\$ with \$isocyanate).ti.	24	<u>L3</u>
<u>L2</u>	(coat\$ substrate with polymer with \$isocyanate).ti.	0	<u>L2</u>
<u>L1</u>	(coating substrate with polymer with isocyanate).ti.	0	<u>L1</u>

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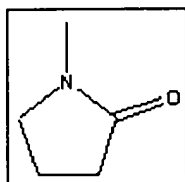
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1-Methyl-2-pyrrolidinone [872-50-4]

Synonyms: Methylpyrrolidone; 1-Methyl-5-Pyrrolidinone; N-Methylpyrrolidone; N-Methyl-2-Pyrrolidone; 1-Methyl-2-pyrrolidone; Deuterated N-Methyl-2-Pyrrolidone; m-pyrrole; 1-Methylpyrrolidinone; N-methylpyrrolidinone; NMP; N-Methyl-2-pyrrolidinone;

C₅H₉NO
99.1322



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ACX Number X1001033-4

Melting Point (°C) -24

Boiling Point (°C) 202

Refractive Index

Evaporation Rate 0.06

Flash Point (°C) 91

DOT Number

Comments Clear colorless liquid. HYGROSCOPIC/LIGHT SENSITIVE.

CAS RN 872-50-4

Density 1.033

Vapor Density 3.4

Vapor Pressure

Water Solubility >=10 g/100 mL at 20 C

EPA Code

RTECS UY5790000

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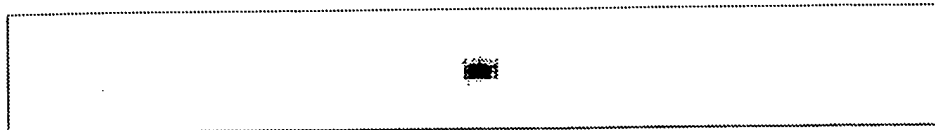
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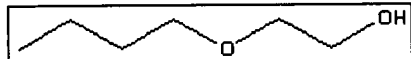
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2-Butoxy ethanol [111-76-2]

Synonyms: Butyl cellosolve; Dowanol EB; Butyl oxitol; Jeffersol EB; Ektasolve EB; Ethylene glycol mono butyl ether; Ethylene glycol n-butyl ether; n-Butyl Cellosolve; Ethylene Glycol Mono-n-butyl Ether; butoxyethanol; Beta-butoxyethanol; Ethylene glycol butyl ether; BUCS; n-butoxyethanol; 2-butoxy-1-ethanol; o-butyl ethylene glycol; butyl glycol; gafcol eb; glycol butyl ether; glycol ether eb; glycol ether eb acetate; monobutyl ether of ethylene glycol; monobutyl glycol ether; 3-oxa-1-heptanol; poly-solv eb; 2-n-Butoxyethanol; Ektasolve EB solvent; 2-n-Butoxy-1-ethanol; 2-BUTOXY ETHANOL (ETHYLENE GLYCOL MONOBUTYL ETHER); Ethylene glycol monobutyl ether (EGBE) (2-Butoxyet ;



118.1754



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ACX Number X1001552-4

Melting Point (°C) -70

Boiling Point (°C) 171

Refractive Index

Evaporation Rate

Flash Point (°C) 61

DOT Number UN 2369 Flammable Liquid

Comments Colorless liquid with a mild odor. Miscibility agent.

CAS RN 111-76-2

Density 0.903

Vapor Density 4.1

Vapor Pressure 0.98 mmHg @ 25C

Water Solubility miscible.

EPA Code

RTECS KJ8575000

More information about the chemical is available in these categories: